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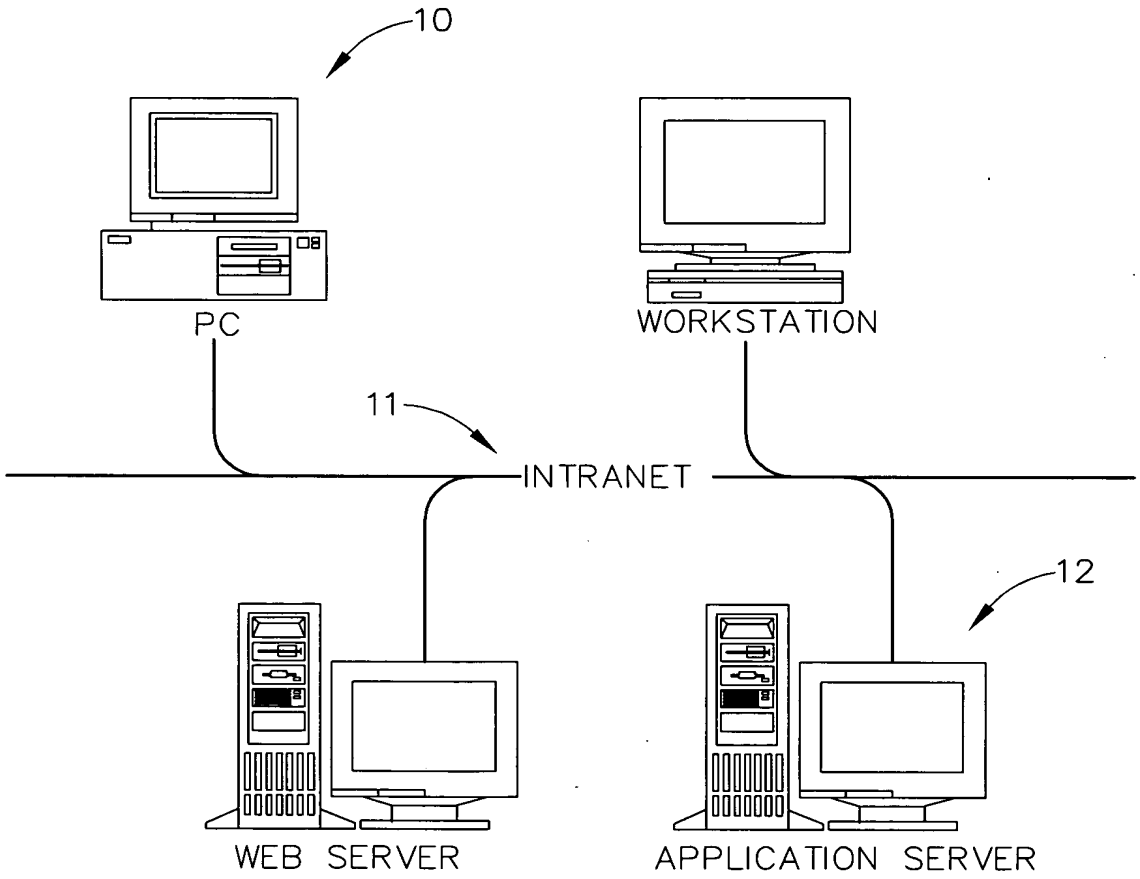

10
PC
WORKSTATION
11
INTRANET
12
WEB SERVER
APPLICATION SERVER

FIG. 1

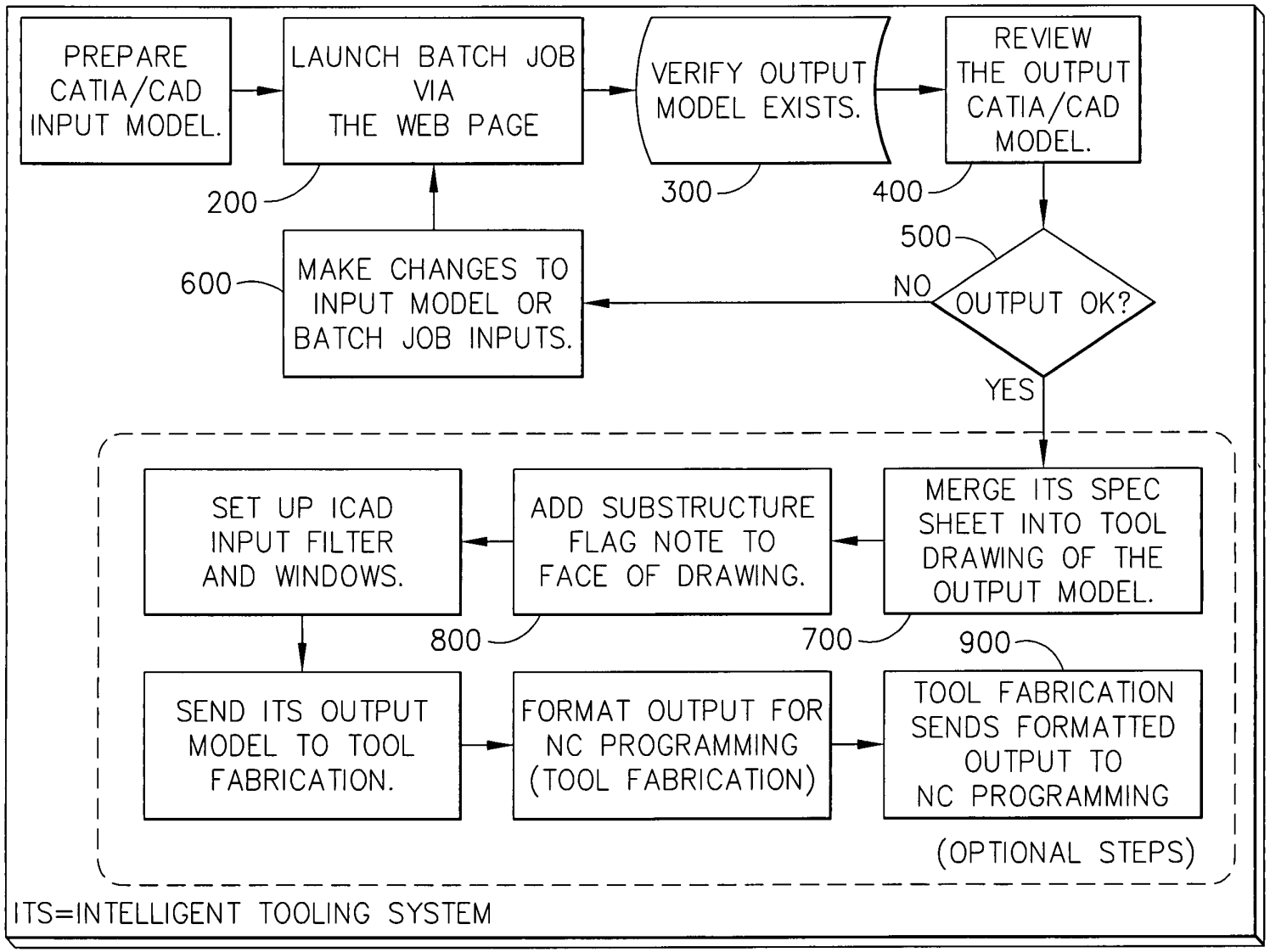

PREPARE CATIA/CAD INPUT MODEL.
LAUNCH BATCH JOB VIA THE WEB PAGE
VERIFY OUTPUT MODEL EXISTS.
REVIEW THE OUTPUT CATIA/CAD MODEL.
200
300
400
500
NO
OUTPUT OK?
600
MAKE CHANGES TO INPUT MODEL OR BATCH JOB INPUTS.
YES
SET UP ICAD INPUT FILTER AND WINDOWS.
ADD SUBSTRUCTURE FLAG NOTE TO FACE OF DRAWING.
MERGE ITS SPEC SHEET INTO TOOL DRAWING OF THE OUTPUT MODEL.
800
700
900
SEND ITS OUTPUT MODEL TO TOOL FABRICATION.
FORMAT OUTPUT FOR NC PROGRAMMING (TOOL FABRICATION)
TOOL FABRICATION SENDS FORMATTED OUTPUT TO NC PROGRAMMING
(OPTIONAL STEPS)
ITS=INTELLIGENT TOOLING SYSTEM

FIG. 2

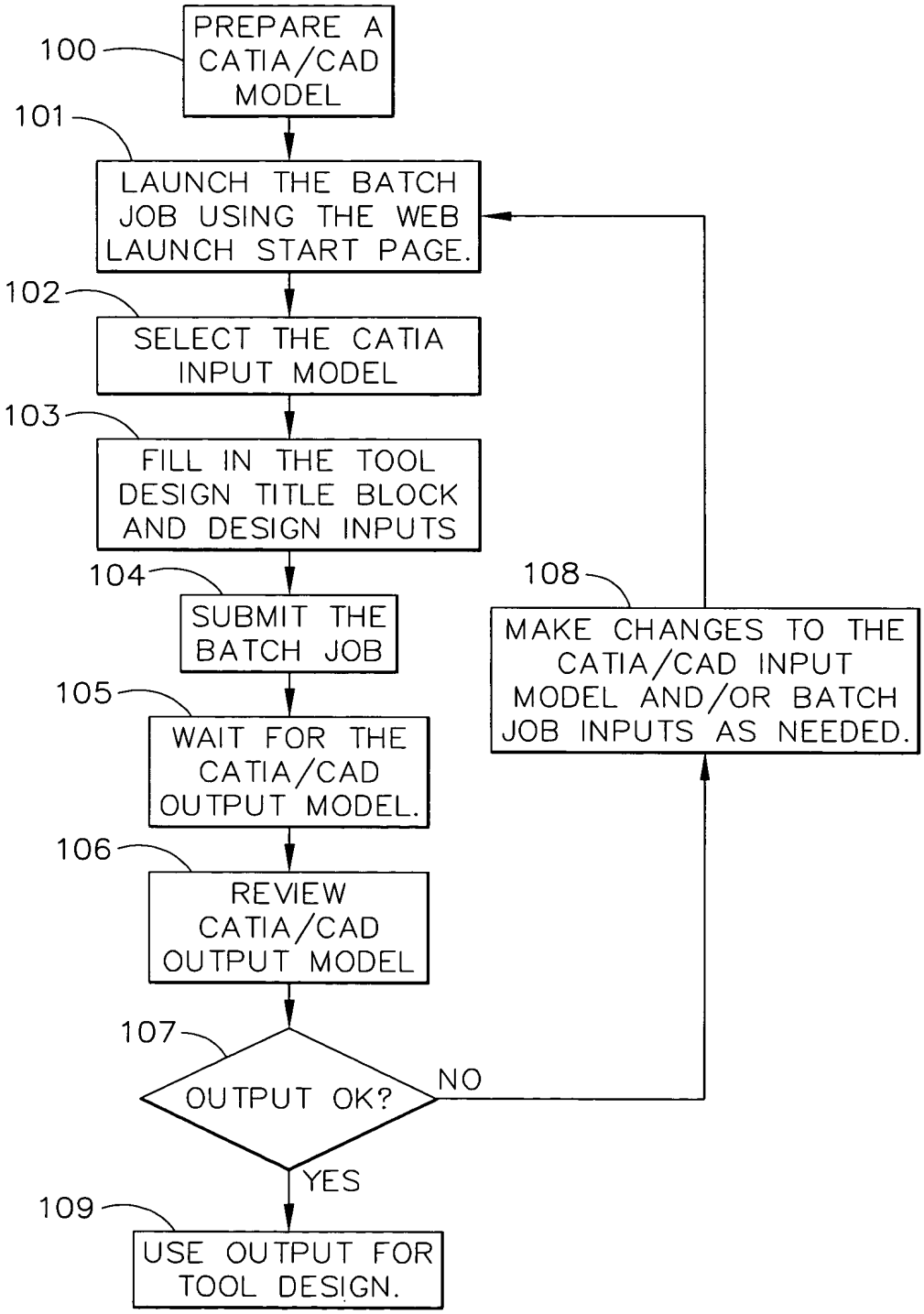

100
PREPARE A CATIA/CAD MODEL
101
LAUNCH THE BATCH JOB USING THE WEB LAUNCH START PAGE.
102
SELECT THE CATIA INPUT MODEL
103
FILL IN THE TOOL DESIGN TITLE BLOCK AND DESIGN INPUTS
104
SUBMIT THE BATCH JOB
105
WAIT FOR THE CATIA/CAD OUTPUT MODEL.
106
REVIEW CATIA/CAD OUTPUT MODEL
107
OUTPUT OK?
NO
YES
108
MAKE CHANGES TO THE CATIA/CAD INPUT MODEL AND/OR BATCH JOB INPUTS AS NEEDED.
109
USE OUTPUT FOR TOOL DESIGN.

FIG. 3

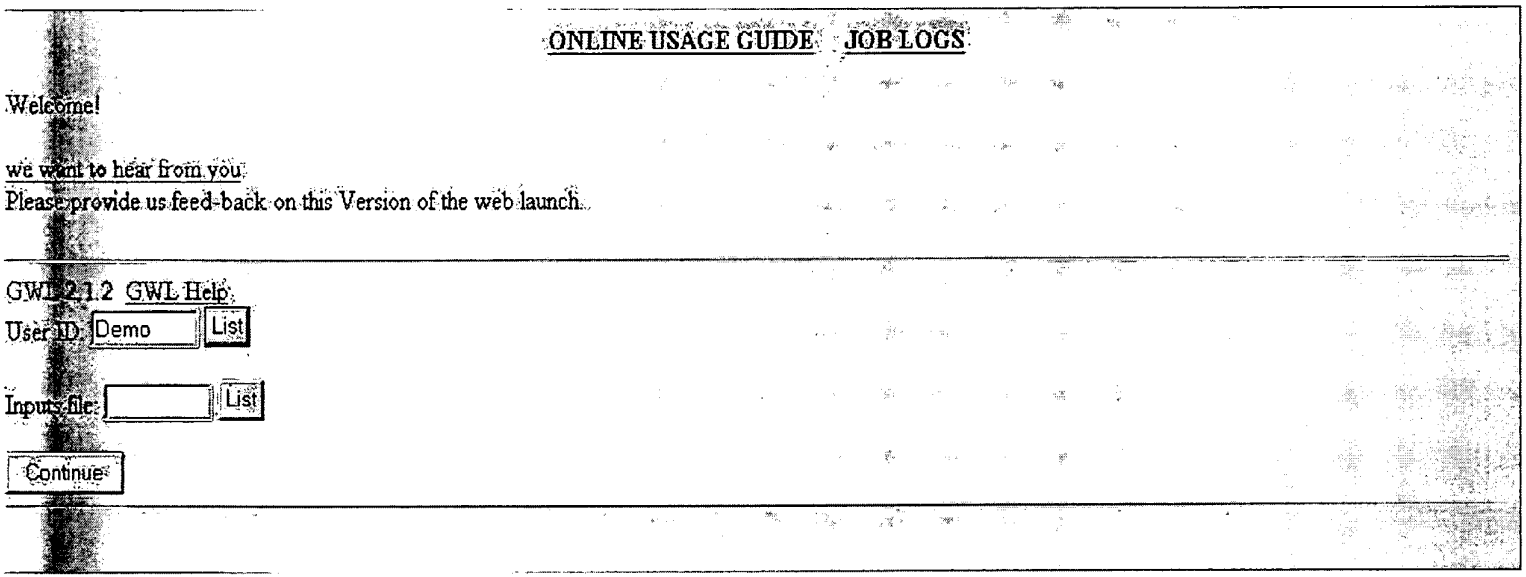

ONLINE USAGE GUIDE
JOB LOGS
Welcome!
we want to hear from you
Please provide us feed-back on this Version of the web launch.
GWL 2.1.2 GWL Help
User ID: Demo
List
Inputs file:
List
Continue

FIG. 4

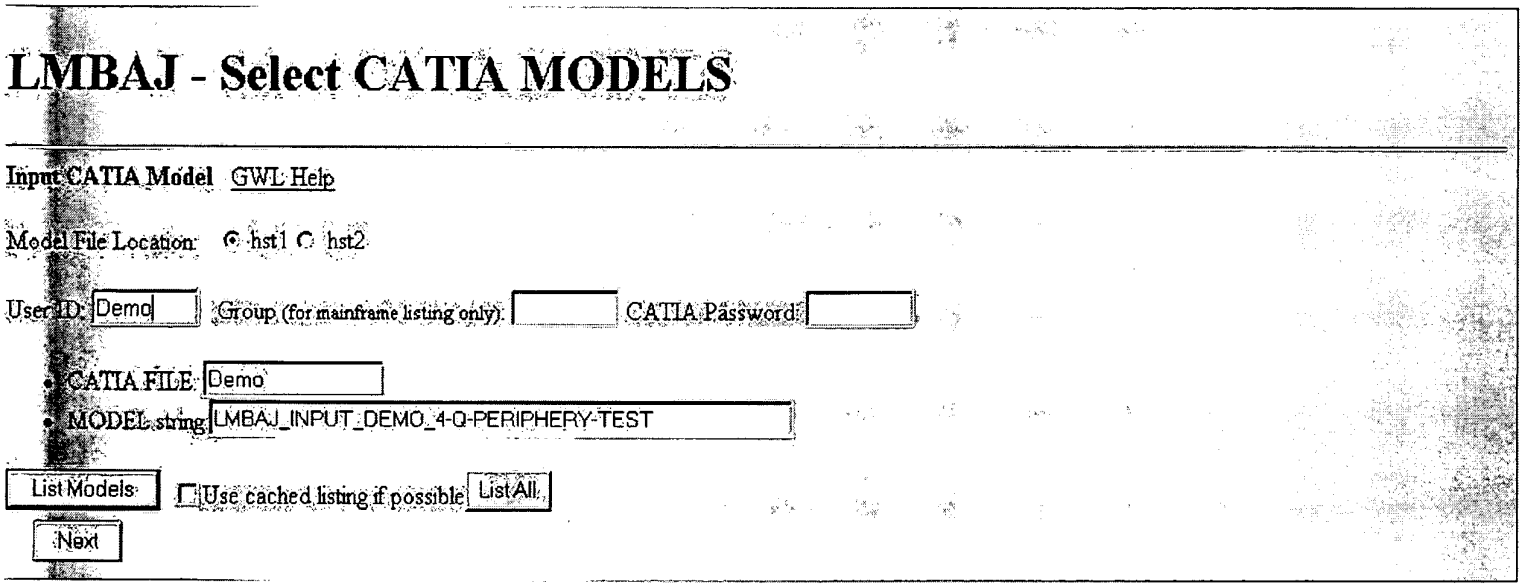
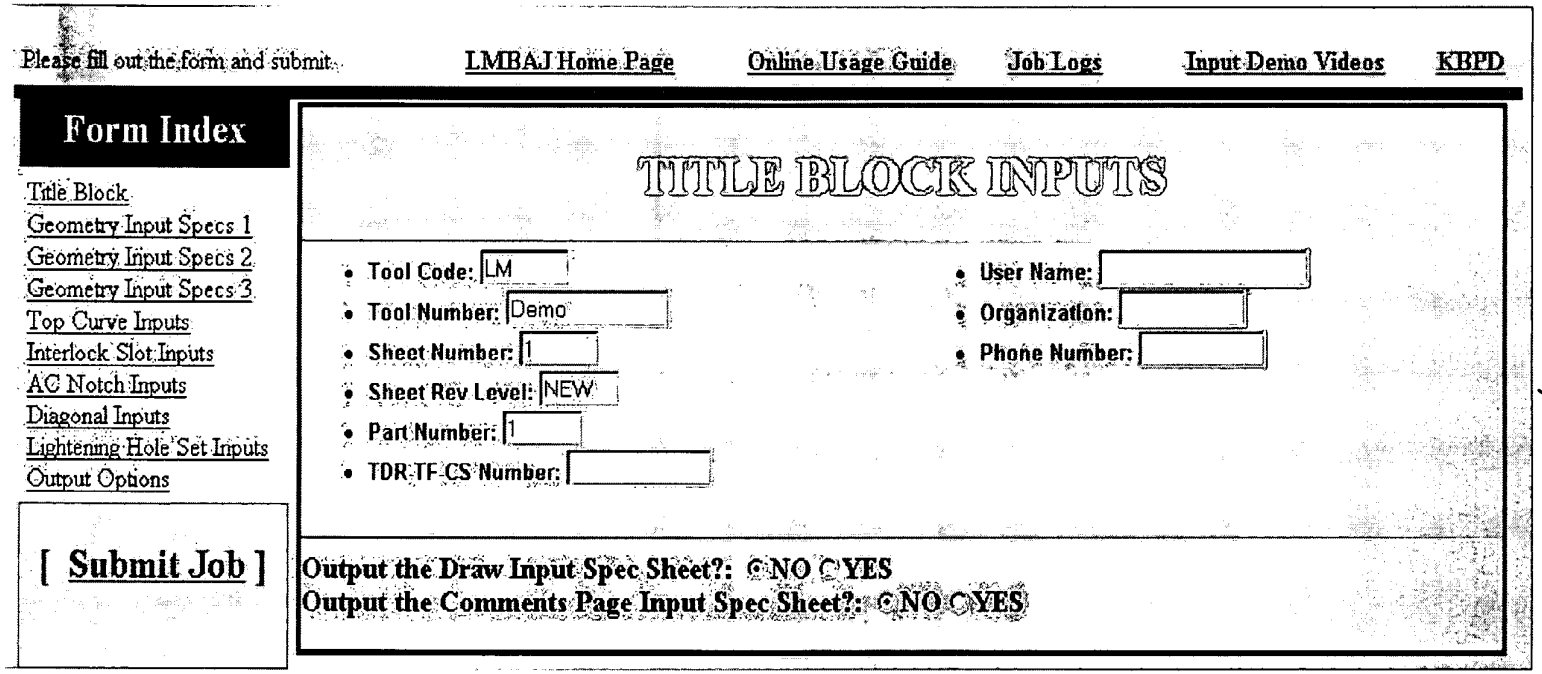

LMBAJ - Select CATIA MODELS
Input CATIA Model GWL Help
Model File Location hst1 hst2
User ID: Demo
Group (for mainframe listing only):
CATIA Password:
CATIA FILE: Demo
MODEL string: LMBAJ_INPUT_DEMO_4-Q-PERIPHERY-TEST
List Models
Use cached listing if possible
List All
Next

FIG. 5


Please fill out the form and submit.
LMBAJ Home Page
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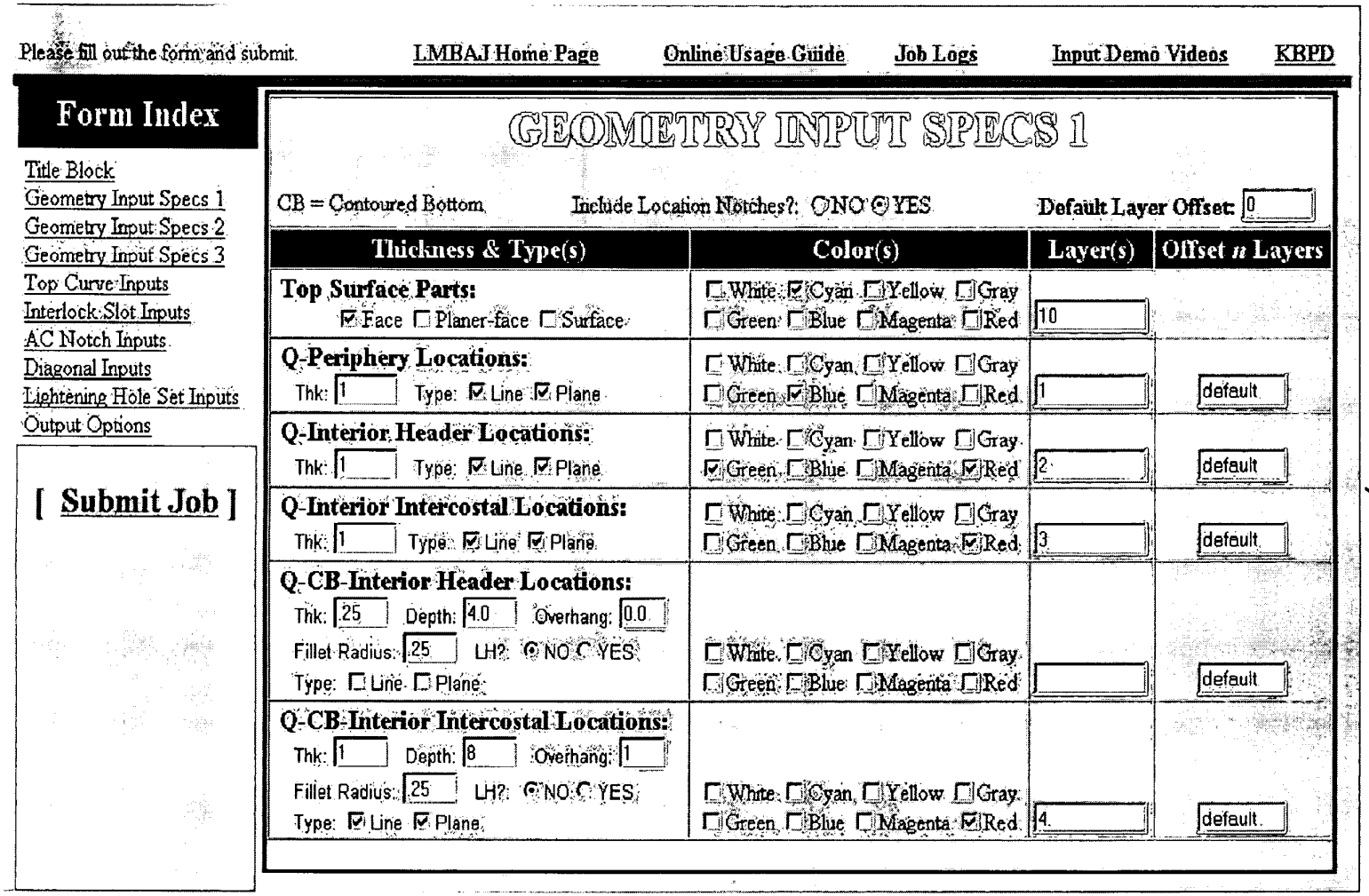
KBPD
Form Index
Title Block
Geometry Input Specs 1
Geometry Input Specs 2
Geometry Input Specs 3
Top Curve Inputs
Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
TITLE BLOCK INPUTS
Tool Code: LM
Tool Number: Demo
Sheet Number: 1
Sheet Rev Level: NEW
Part Number: 1
TDR TF CS Number:
User Name:
Organization:
Phone Number:
Output the Draw Input Spec Sheet?: NO YES
Output the Comments Page Input Spec Sheet?: NO YES

FIG. 6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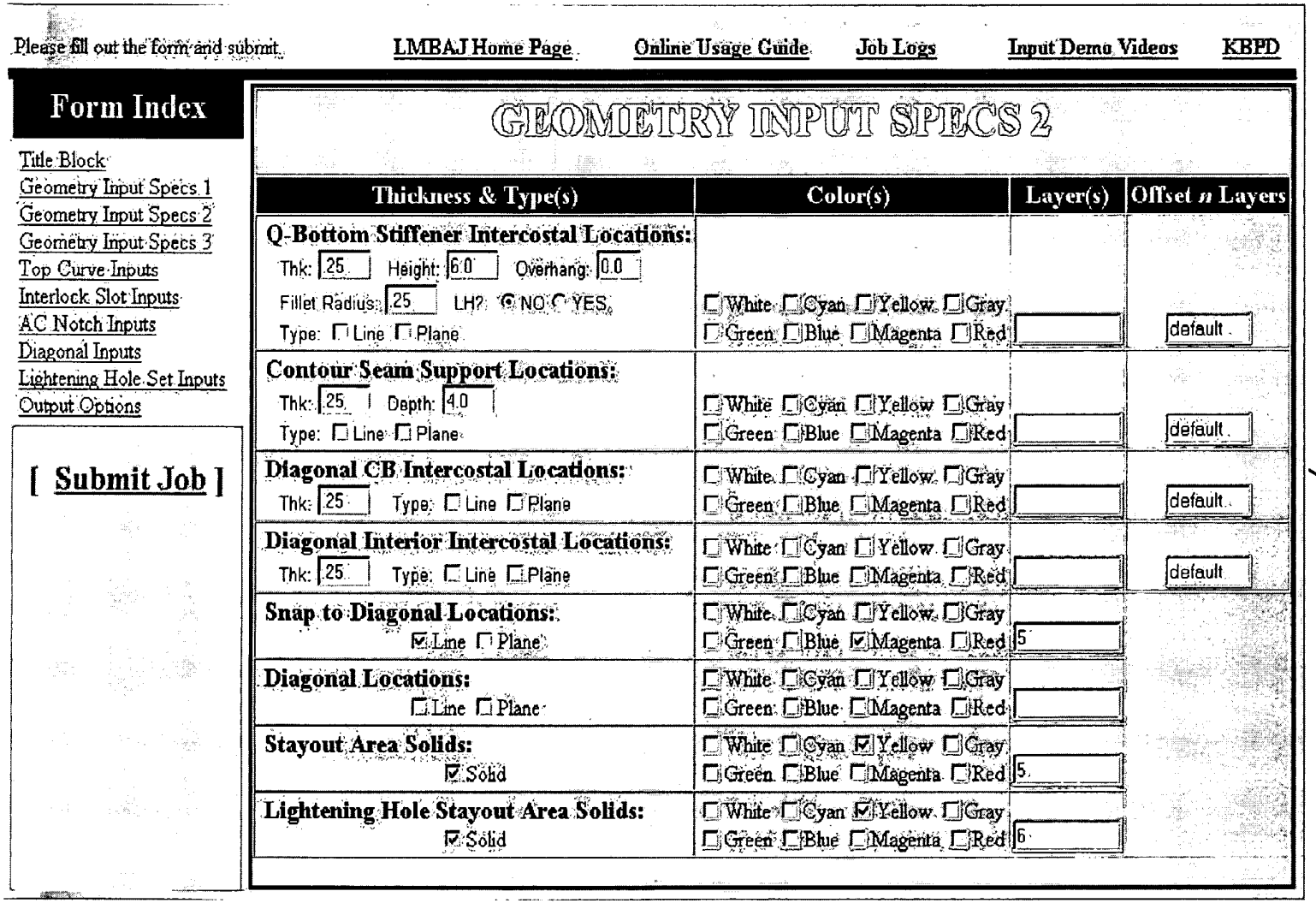
Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
GEOMETRY INPUT SPECS 1
CB = Contoured Bottom
Include Location Notches?: NO YES
Default Layer Offset: 0
Thickness & Type(s)
Color(s)
Layer(s)
Offset n Layers
Top Surface Parts:
Face Planer-face Surface
White Cyan Yellow Gray
Green Blue Magenta Red
10
Q-Periphery Locations:
Thk: 1 Type: Line Plane
1
default
Q-Interior Header Locations:
2
Q-Interior Intercostal Locations:
3
Q-CB-Interior Header Locations:
Thk: .25 Depth: 4.0 Overhang: 0.0
Fillet Radius: .25 LH? NO YES
Type: Line Plane
Q-CB-Interior Intercostal Locations:
Thk: 1 Depth: 8 Overhang: 1
4.
default.

FIG. 7


Please fill out the form and submit.
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Geometry Input Specs 1
Geometry Input Specs 2
Geometry Input Specs 3
Top Curve Inputs
Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
GEOMETRY INPUT SPECS 2
Thickness & Type(s)
Color(s)
Layer(s)
Offset n Layers
Q-Bottom Stiffener Intercostal Locations:
Thk: .25 Height: 6.0 Overhang: 0.0
Fillet Radius: .25 LH? NO YES
Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
default
Contour Seam Support Locations:
Thk: .25 Depth: 4.0
Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
default
Diagonal CB Intercostal Locations:
Thk: .25 Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
default
Diagonal Interior Intercostal Locations:
Thk: .25 Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
default
Snap to Diagonal Locations:
Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
5
Diagonal Locations:
Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
Stayout Area Solids:
Solid
White Cyan Yellow Gray
Green Blue Magenta Red
5
Lightening Hole Stayout Area Solids:
Solid
White Cyan Yellow Gray
Green Blue Magenta Red
6

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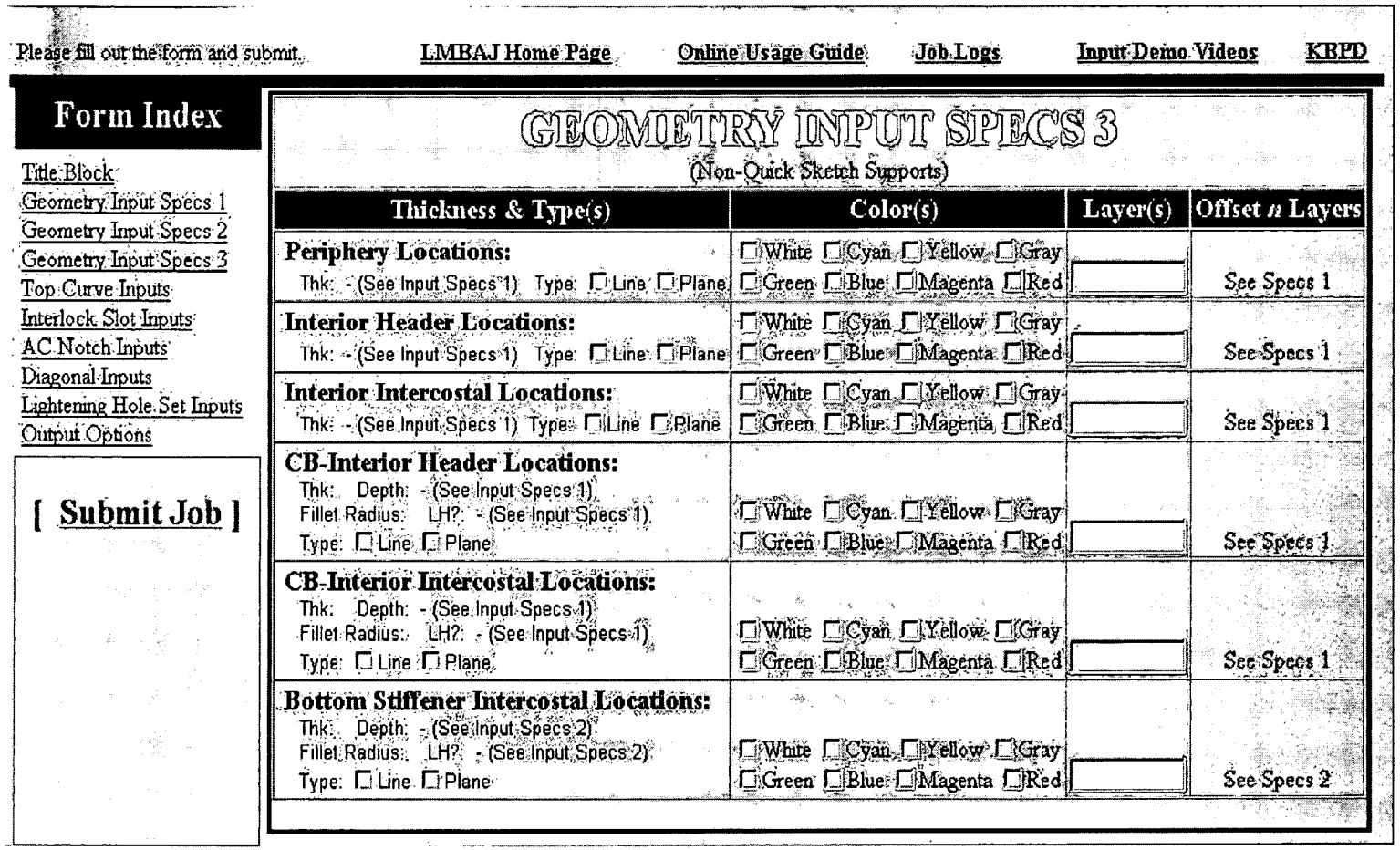
FIG. 8


Please fill out the form and submit.
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Geometry Input Specs 2
Geometry Input Specs 3
Top Curve Inputs
Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
GEOMETRY INPUT SPECS 3
(Non-Quick Sketch Supports)
Thickness & Type(s)
Color(s)
Layer(s)
Offset n Layers
Periphery Locations:
Thk: - (See Input Specs 1) Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
See Specs 1
Interior Header Locations:
Thk: - (See Input Specs 1) Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
See Specs 1
Interior Intercostal Locations:
Thk: - (See Input Specs 1) Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
See Specs 1
CB-Interior Header Locations:
Thk: Depth: - (See Input Specs 1)
Fillet Radius: LH?: - (See Input Specs 1)
Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
See Specs 1
CB-Interior Intercostal Locations:
Thk: Depth: - (See Input Specs 1)
Fillet Radius: LH?: - (See Input Specs 1)
Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
See Specs 1
Bottom Stiffener Intercostal Locations:
Thk: Depth: - (See Input Specs 2)
Fillet Radius: LH?: - (See Input Specs 2)
Type: Line Plane
White Cyan Yellow Gray
Green Blue Magenta Red
See Specs 2

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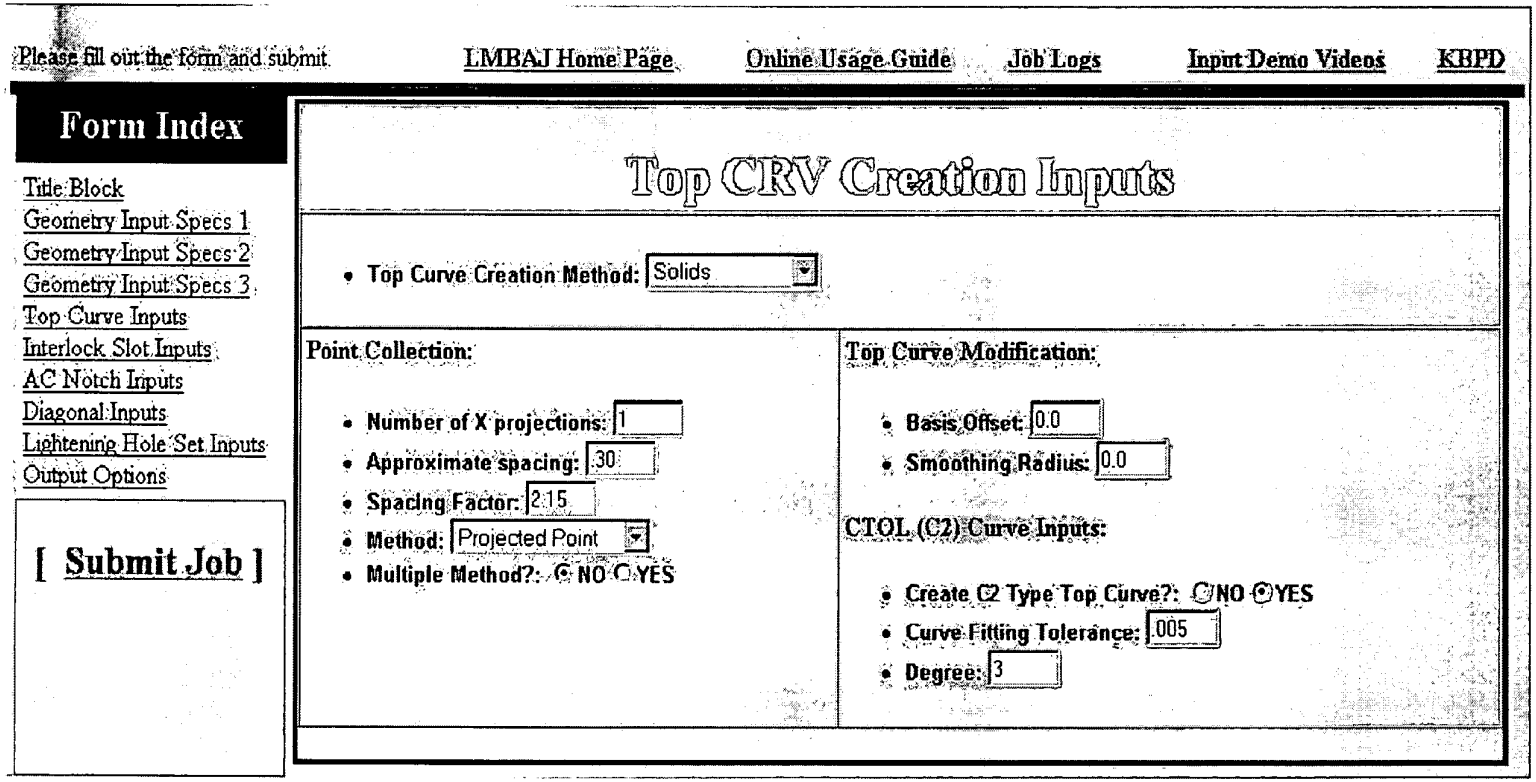
FIG. 9


Please fill out the form and submit
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Geometry Input Specs 2
Geometry Input Specs 3
Top Curve Inputs
Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
Top CRV Creation Inputs
Top Curve Creation Method: Solids
Point Collection:
Number of X projections: 1
Approximate spacing: 30
Spacing Factor: 2.15
Method: Projected Point
Multiple Method?: NO YES
Top Curve Modification:
Basis Offset: 0.0
Smoothing Radius: 0.0
CTOL (C2) Curve Inputs:
Create C2 Type Top Curve?: NO YES
Curve Fitting Tolerance: .005
Degree: 3

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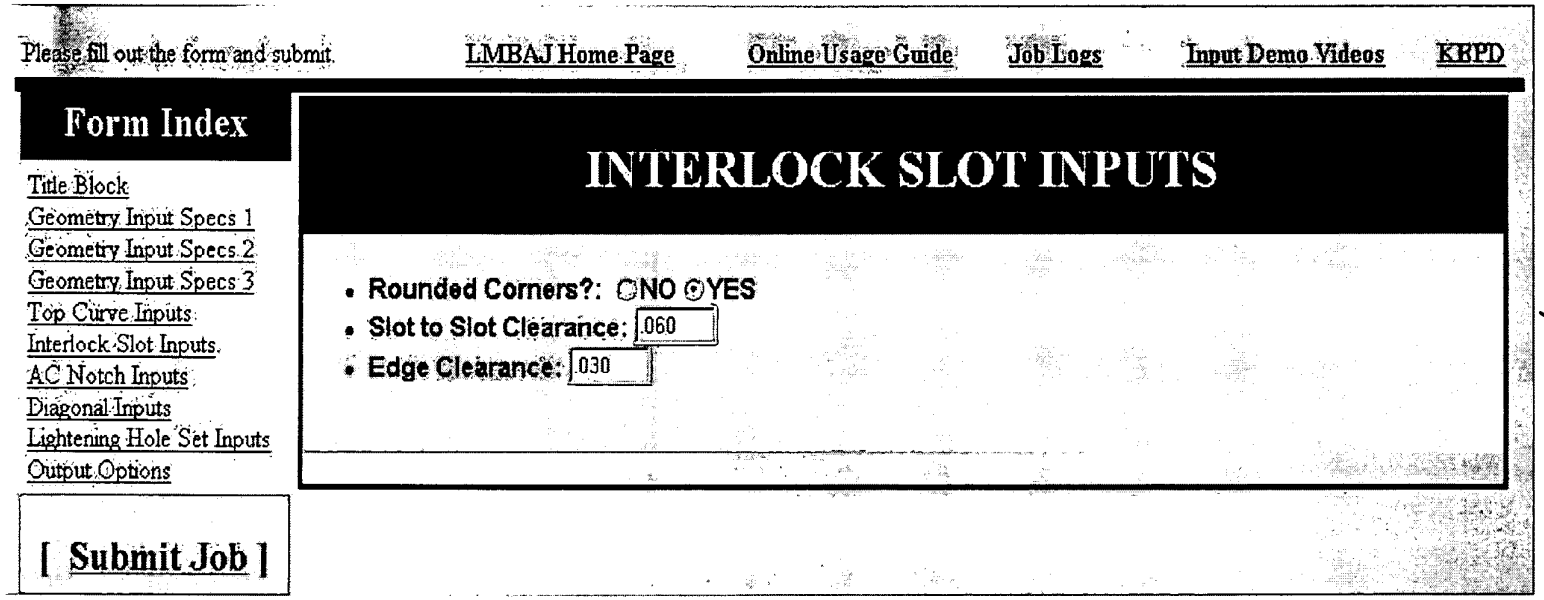
FIG. 10A


Please fill out the form and submit.
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Geometry Input Specs 3
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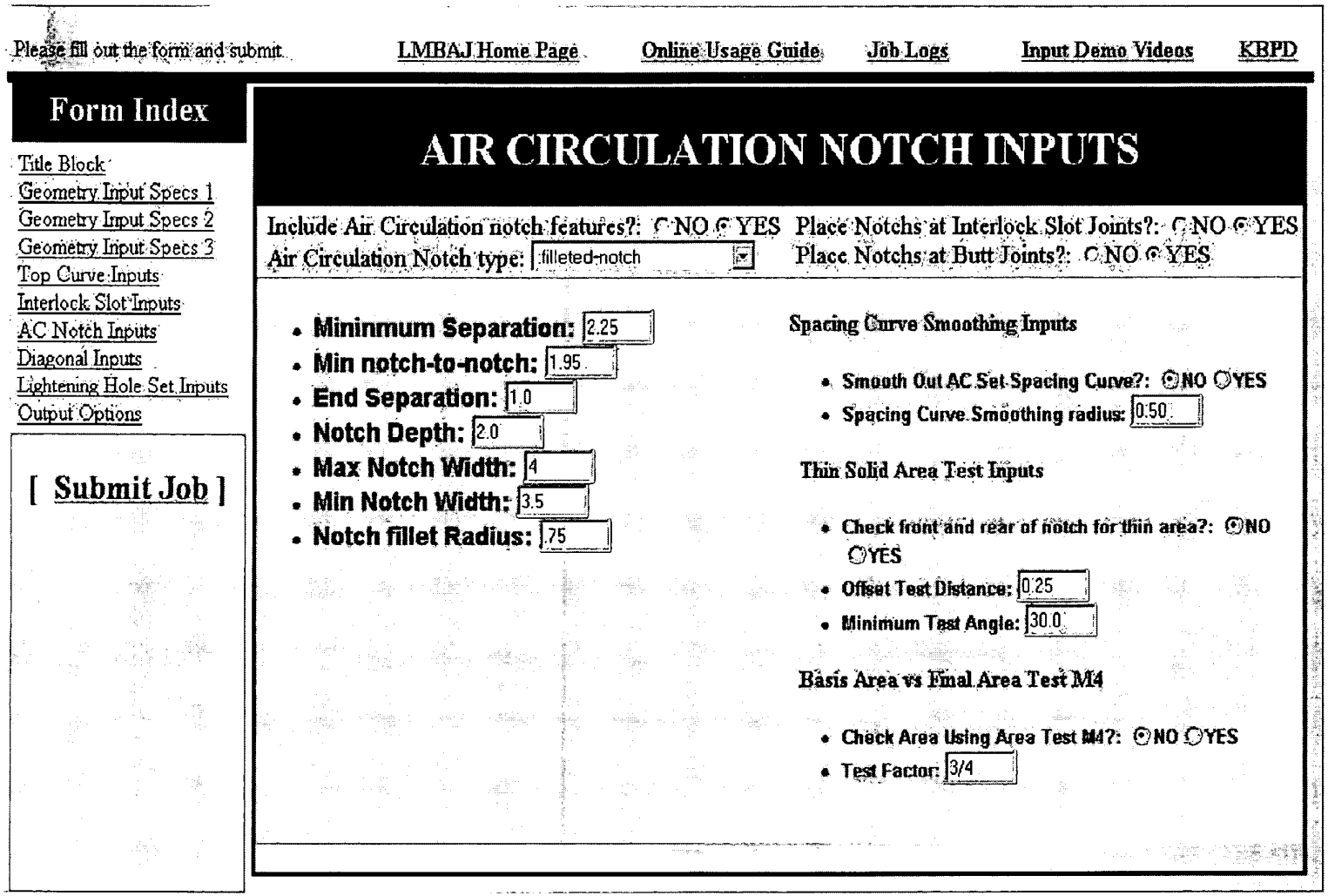
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
INTERLOCK SLOT INPUTS
Rounded Corners?: NO YES
Slot to Slot Clearance: .060
Edge Clearance: .030

FIG. 10B


Please fill out the form and submit
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Geometry Input Specs 3
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Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
AIR CIRCULATION NOTCH INPUTS
Include Air Circulation notch features?: NO YES
Air Circulation Notch type: filleted-notch
Place Notchs at Interlock Slot Joints?: NO YES
Place Notchs at Butt Joints?: NO YES
Mininmum Separation: 2.25
Min notch-to-notch: 1.95
End Separation: 1.0
Notch Depth: 2.0
Max Notch Width: 4
Min Notch Width: 3.5
Notch fillet Radius: .75
Spacing Curve Smoothing Inputs
Smooth Out AC Set Spacing Curve?: NO YES
Spacing Curve Smoothing radius: 0.50
Thin Solid Area Test Inputs
Check front and rear of notch for thin area?: NO YES
Offset Test Distance: 0.25
Minimum Test Angle: 30.0
Basis Area vs Final Area Test M4
Check Area Using Area Test M4?: NO YES
Test Factor: 3/4

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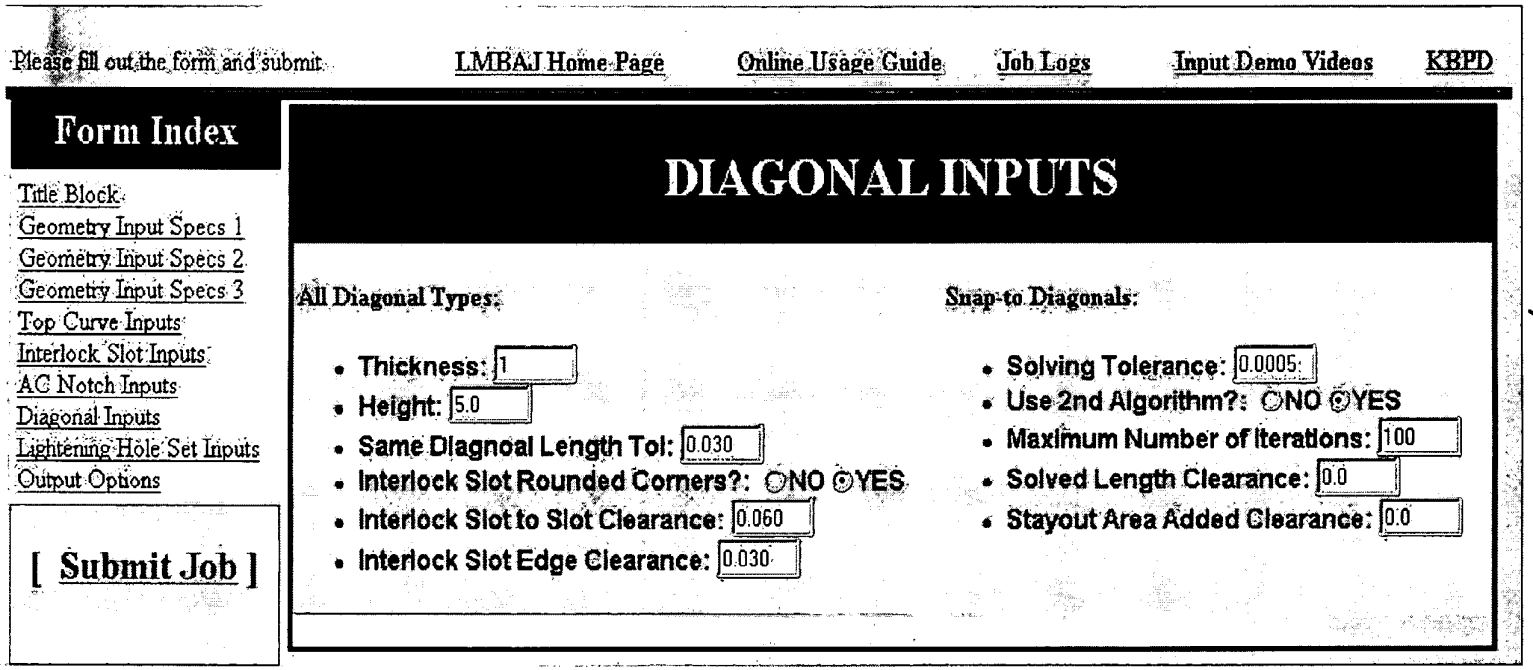
FIG. 10C


Please fill out the form and submit
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Geometry Input Specs 2
Geometry Input Specs 3
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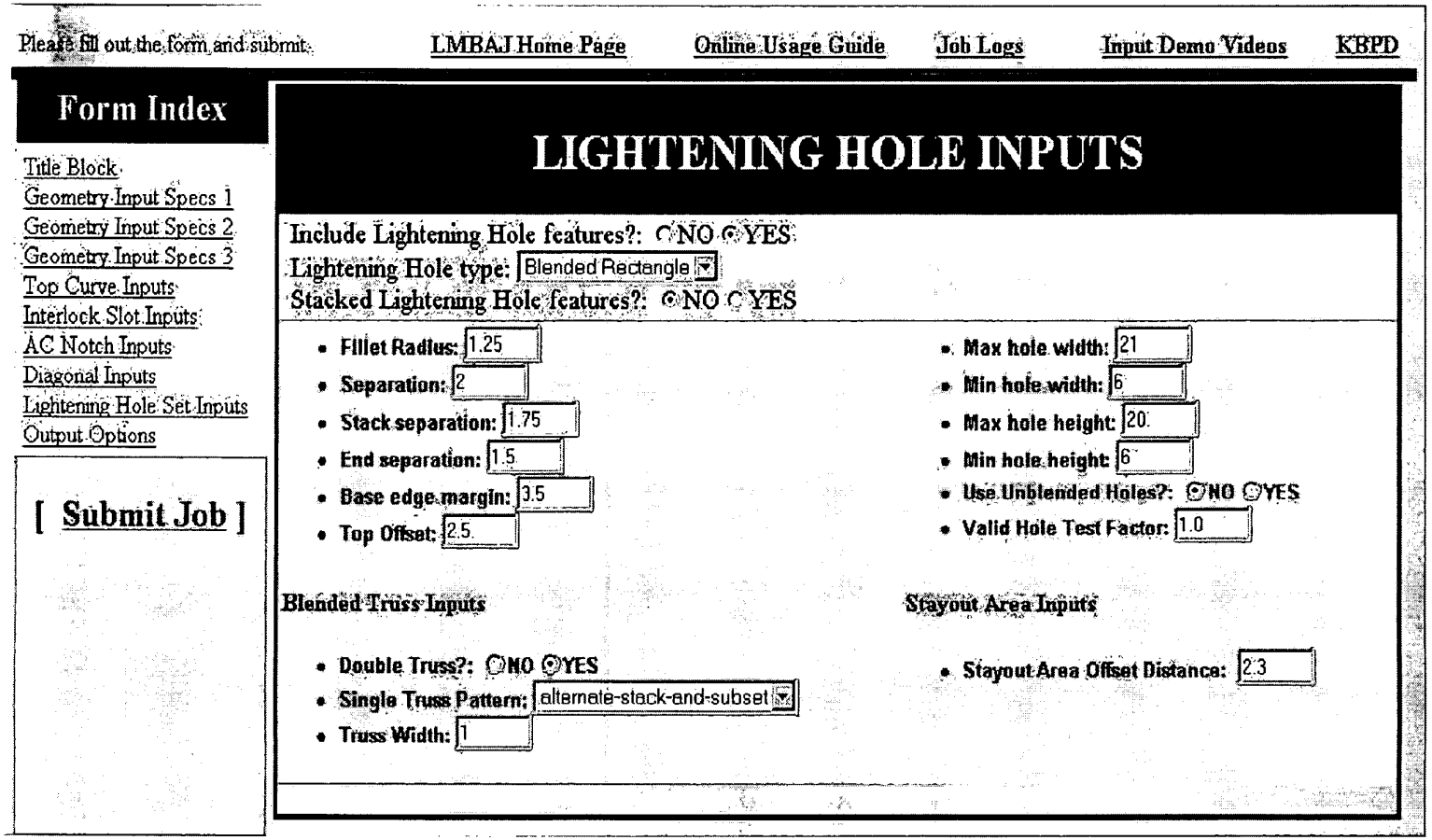
Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
DIAGONAL INPUTS
All Diagonal Types:
Thickness: 1
Height: 5.0
Same Diagnoal Length Tol: 0.030
Interlock Slot Rounded Corners?: ○NO ⊙YES
Interlock Slot to Slot Clearance: 0.060
Interlock Slot Edge Clearance: 0.030
Snap-to Diagonals:
Solving Tolerance: 0.0005
Use 2nd Algorithm?: ○NO ⊙YES
Maximum Number of Iterations: 100
Solved Length Clearance: 0.0
Stayout Area Added Clearance: 0.0

FIG. 10D


Please fill out the form and submit
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Geometry Input Specs 2
Geometry Input Specs 3
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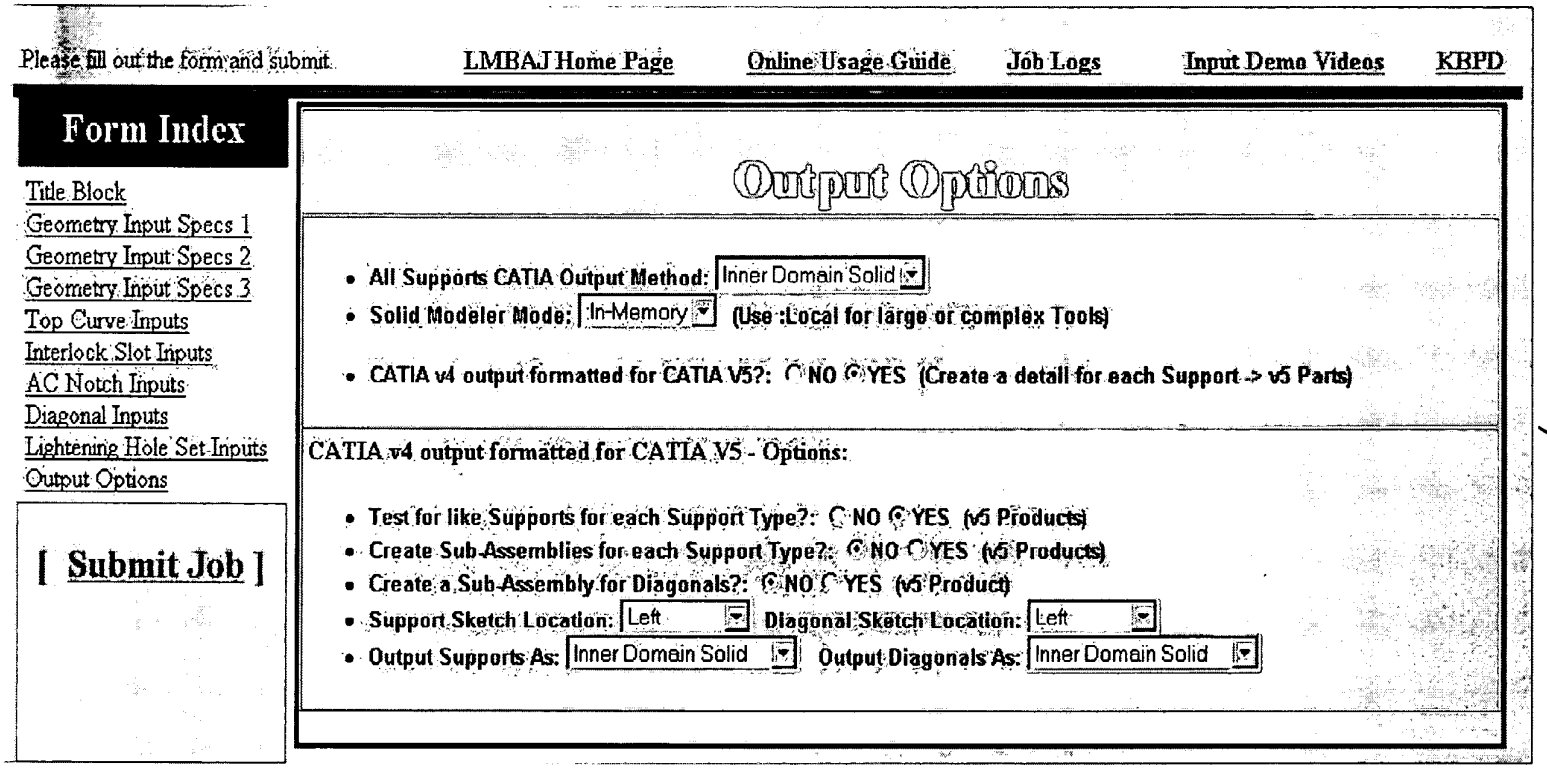
Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
LIGHTENING HOLE INPUTS
Include Lightening Hole features?: NO YES
Lightening Hole type: Blended Rectangle
Stacked Lightening Hole features?: NO YES
Fillet Radius: 1.25
Separation: 2
Stack separation: 1.75
End separation: 1.5
Base edge margin: 3.5
Top Offset: 2.5
Max hole width: 21
Min hole width: 6
Max hole height: 20
Min hole height: 6
Use Unblended Holes?: NO YES
Valid Hole Test Factor: 1.0
Blended Truss Inputs
Double Truss?: NO YES
Single Truss Pattern: alternate-stack-and-subset
Truss Width: 1
Stayout Area Inputs
Stayout Area Offset Distance: 2.3

FIG. 10E


Please fill out the form and submit.
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Geometry Input Specs 2
Geometry Input Specs 3
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Interlock Slot Inputs
AC Notch Inputs
Diagonal Inputs
Lightening Hole Set Inputs
Output Options
[Submit Job]
Output Options
All Supports CATIA Output Method: Inner Domain Solid
Solid Modeler Mode: In-Memory (Use :Local for large or complex Tools)
CATIA v4 output formatted for CATIA V5?: NO YES (Create a detail for each Support -> v5 Parts)
CATIA v4 output formatted for CATIA V5 - Options:
Test for like Supports for each Support Type?: NO YES (v5 Products)
Create Sub-Assemblies for each Support Type?: NO YES (v5 Products)
Create a Sub-Assembly for Diagonals?: NO YES (v5 Product)
Support Sketch Location: Left
Diagonal Sketch Location: Left
Output Supports As: Inner Domain Solid
Output Diagonals As: Inner Domain Solid

FIG. 10F

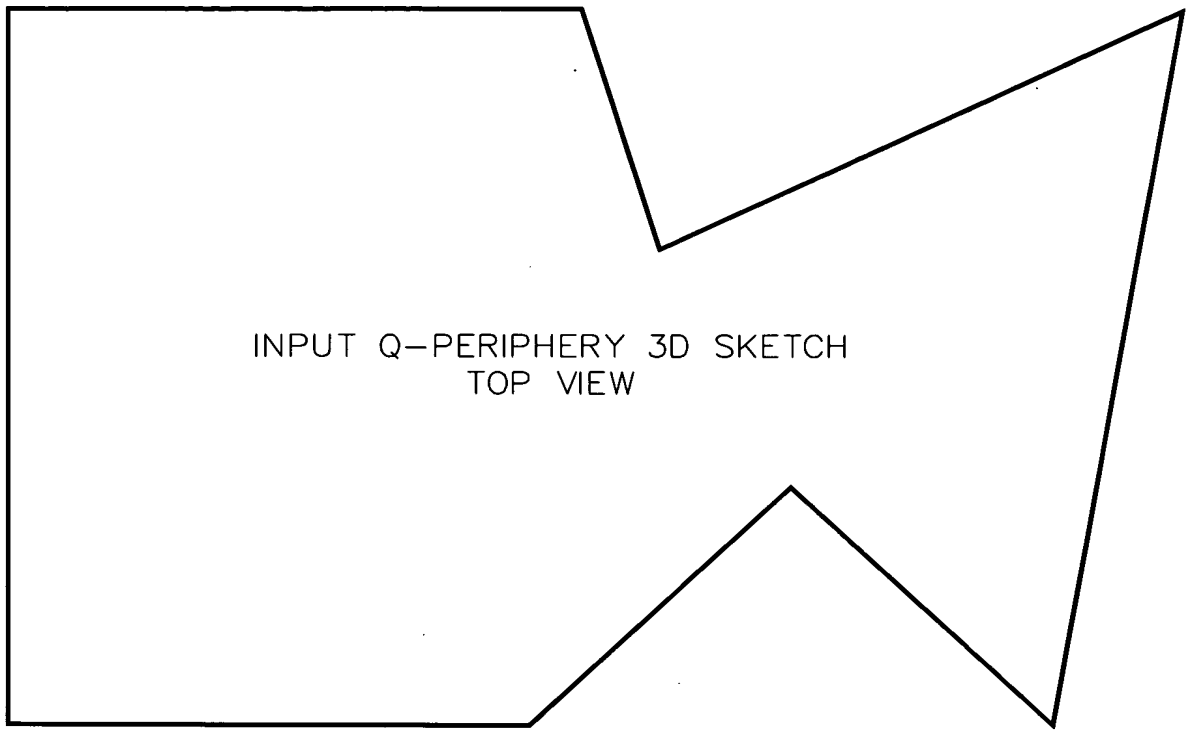


FIG. 11

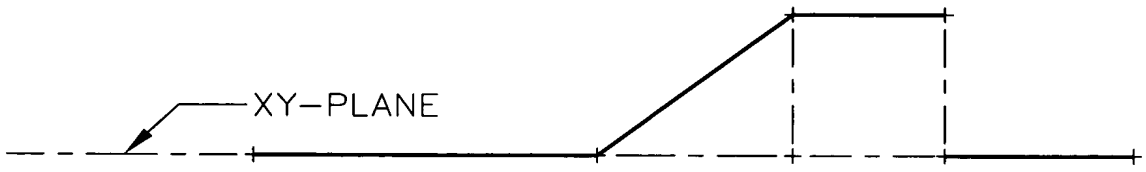


FIG. 12

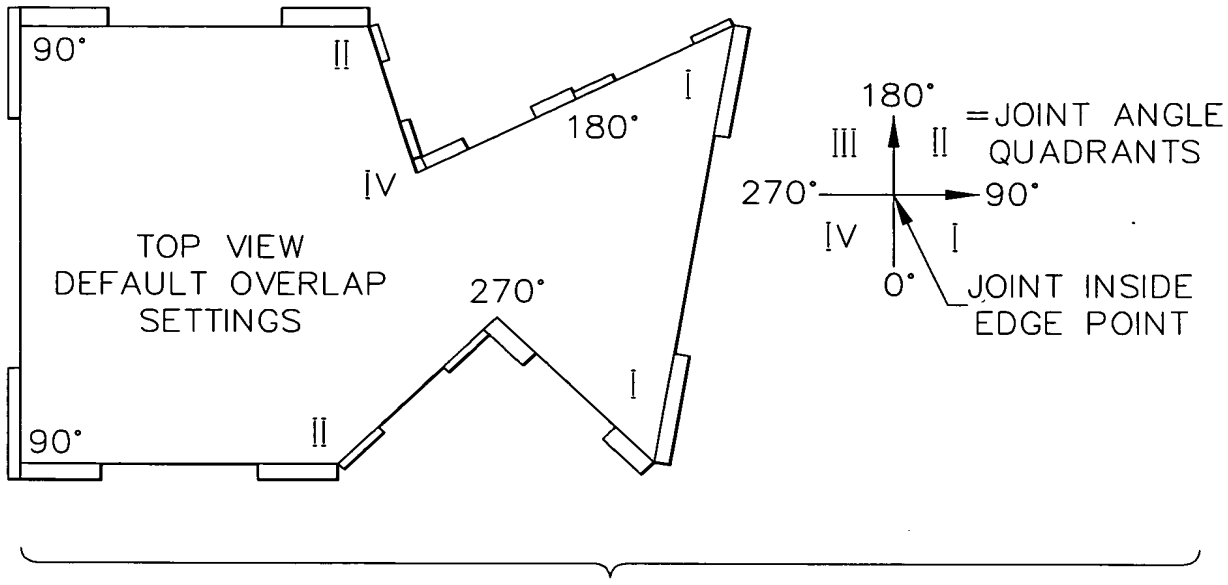


FIG. 13A

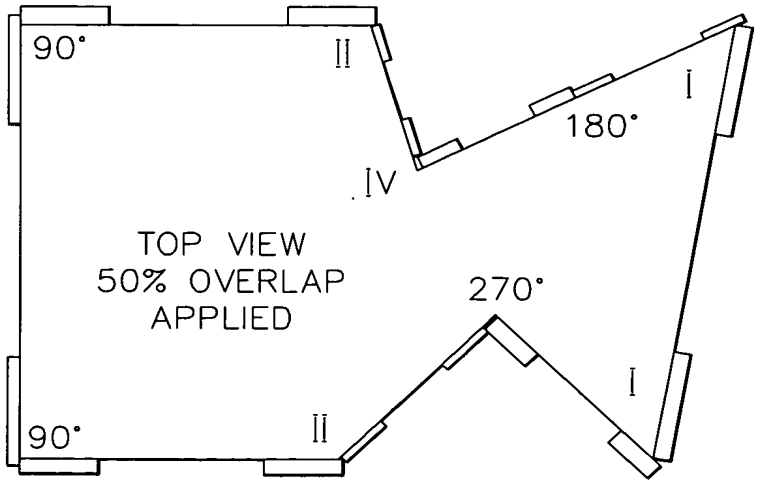


FIG. 13B

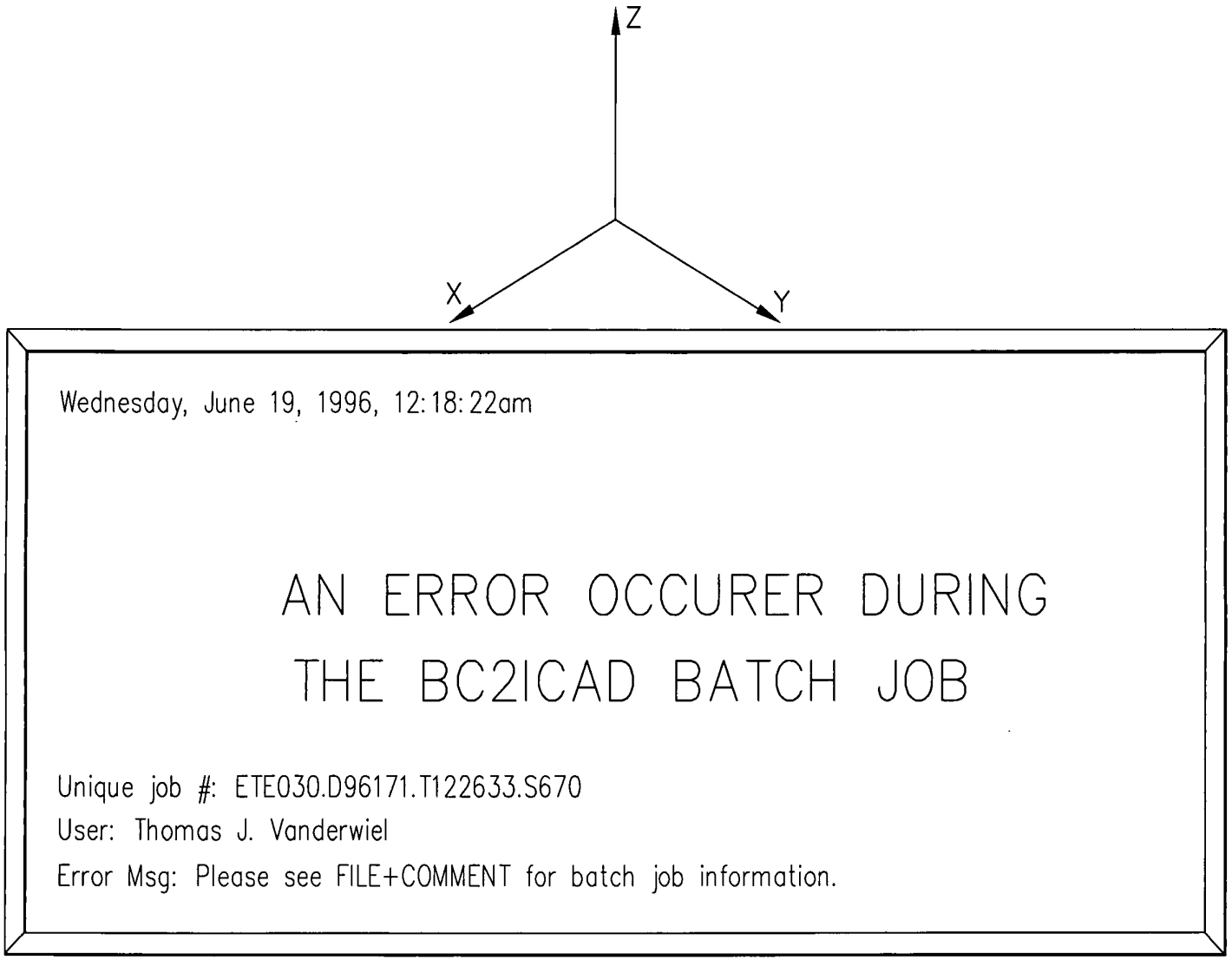
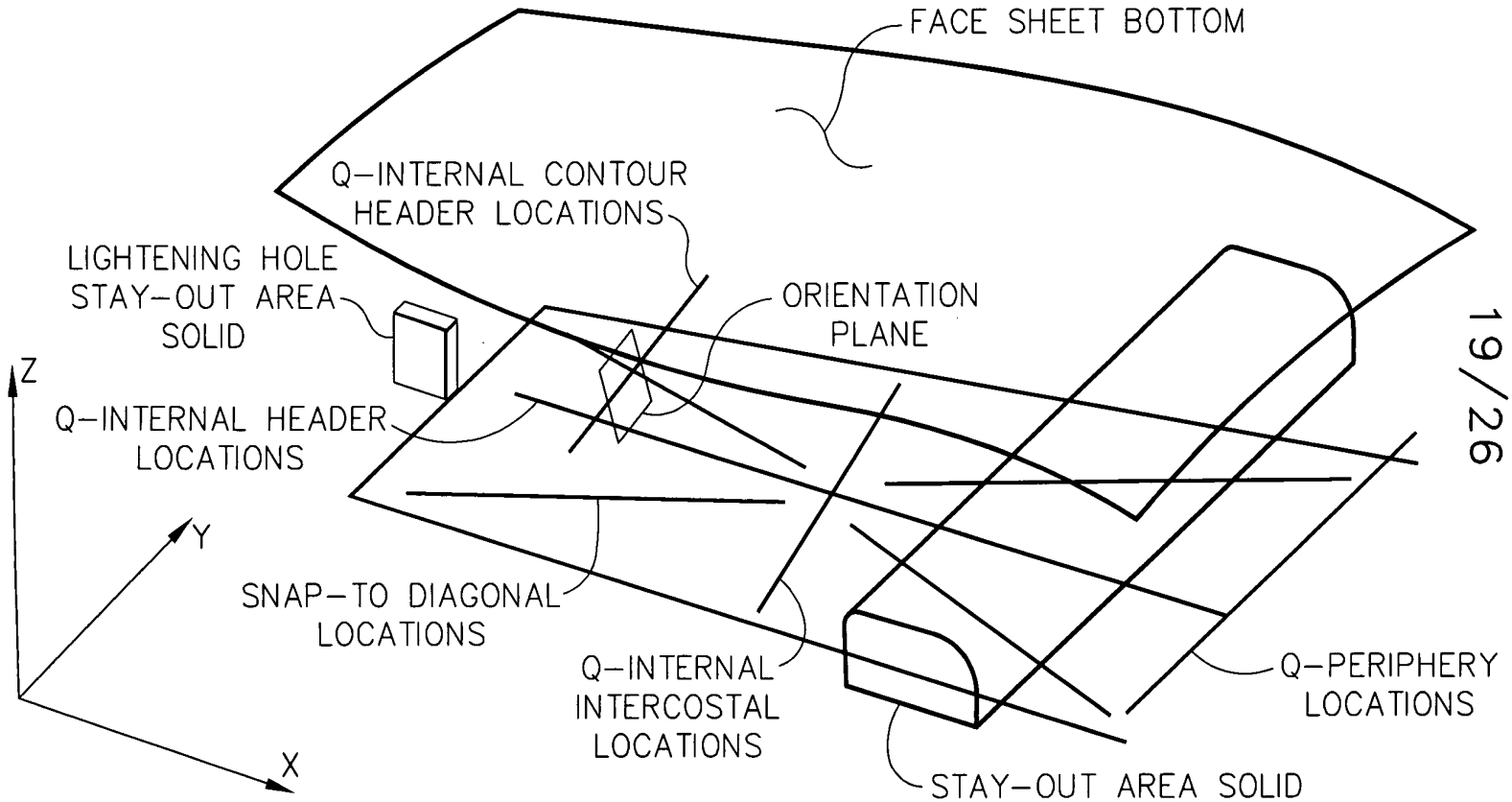

Z
X
Y
Wednesday, June 19, 1996, 12:18:22am
AN ERROR OCCURER DURING
THE BC2ICAD BATCH JOB
Unique job #: ETE030.D96171.T122633.S670
User: Thomas J. Vanderwiel
Error Msg: Please see FILE+COMMENT for batch job information.

FIG. 14



QUICK 3D INPUT SKETCH

FIG. 15

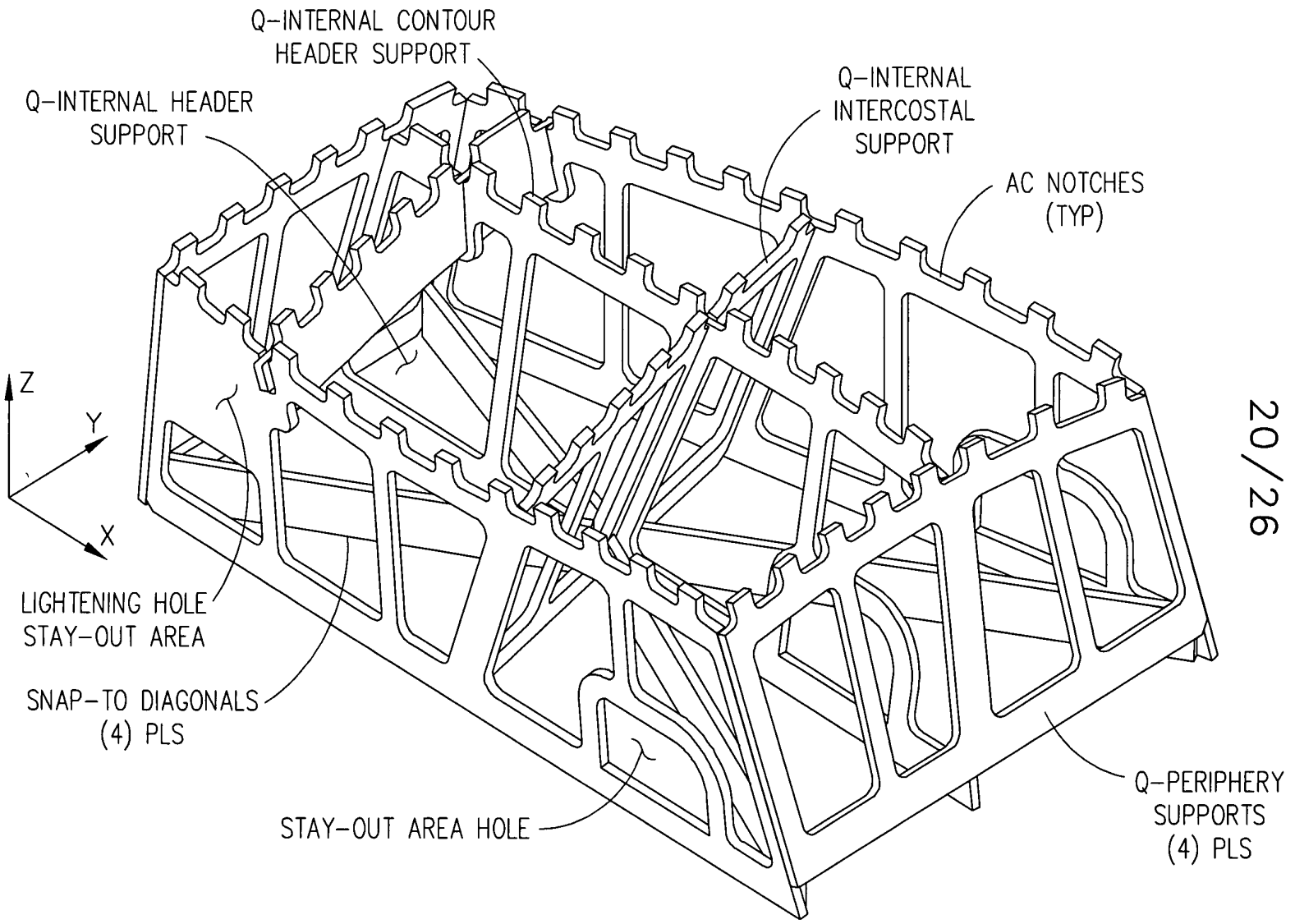


FIG. 16A

3D SPACE OUTPUT

ITS
Intelligent Tooling System

ICAD Input Spec Sheet

Job Data

Date: 7/6/1999
Icad Version: 7.0.1
Application: Eggcrate Substructure Module
Version: 11
Name: John Doe
Organization: A-1021
Phone Number: 555-5555

Tool Info

Tool Code: LM
Tool Number: 123X4567-TEST
Sheet Number: 1
Sheet Rev Level: NEW
Part Number: 1
Tdr Tf Cs Number: T1234567

Input Attribute	Value
Periphery Support Thk:	0.375
Interior Support Thk:	0.25
Contour Seam Support Thk:	0.25
Contour Seam Support Depth:	4
Periphery Support Layer:	NIL
Interior Intercostal Support Layer:	NIL
Interior Header Support Layer:	NIL
Contour Seam Support Layer:	NIL
Reduce Bspline Segmentation For Output?	NIL
Reduce Bsplines To Lines For Output?:	NIL
Reduce Bspline To Lines Chord Ht:	0.01
Reduce Bspline To Lines Chord Ht Tol:	0.005
Ac Include Air Circulation Notch Features?:	T
Ac Notch Pattern:	FILLETED-NOTCH
Ac Min Separation:	2.0
Ac Min Notch To Notch Separation:	1.7
Ac End Separation:	1.0
Ac Notch Depth:	2.0
Ac Max Notch Width:	4.0
Ac Min Notch Width:	2.5
Ac Notch Fillet Radius:	0.5
Ac Default Fit Factor:	0.6
Ac Bottom Fit Factor:	0.6
Lh Include Lightening Hole Features?:	T
Lh Type:	BLENDED-RECTANGLE
Lh Fillet Radius:	0.5
Lh Max Hole Width:	22
Lh Min Hole Width:	6
Lh Truss Thickness:	1
Lh Stacked Holes?:	T

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ITS
Intelligent Tooling System

ICAD Input Spec Sheet

Job Data

Date: 7/6/1999
Icad Version: 7.0.1
Application: Eggcrate Substructure Module
Version: 11
Name: John Doe
Organization: A-1021
Phone Number: 555-5555

Tool Info

Tool Code: LM
Tool Number: 123X4567-TEST
Sheet Number: 1
Sheet Rev Level: NEW
Part Number: 1
Tdr Tf Cs Number: T1234567

Input Attribute	Value
Lh Stack Separation:	1
Lh Max Hole Height:	12
Lh Min Hole Height:	6
Lh Double Truss?:	T
Lh Single Truss Pattern:	ALTERNATE-STACK-AND-SUBSET
Lh Stayout Area Solids:	NIL
Lh Remove Holes That Touch?:	NIL

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FIG. 16B

2D Drew
(Input Spec Sheets)

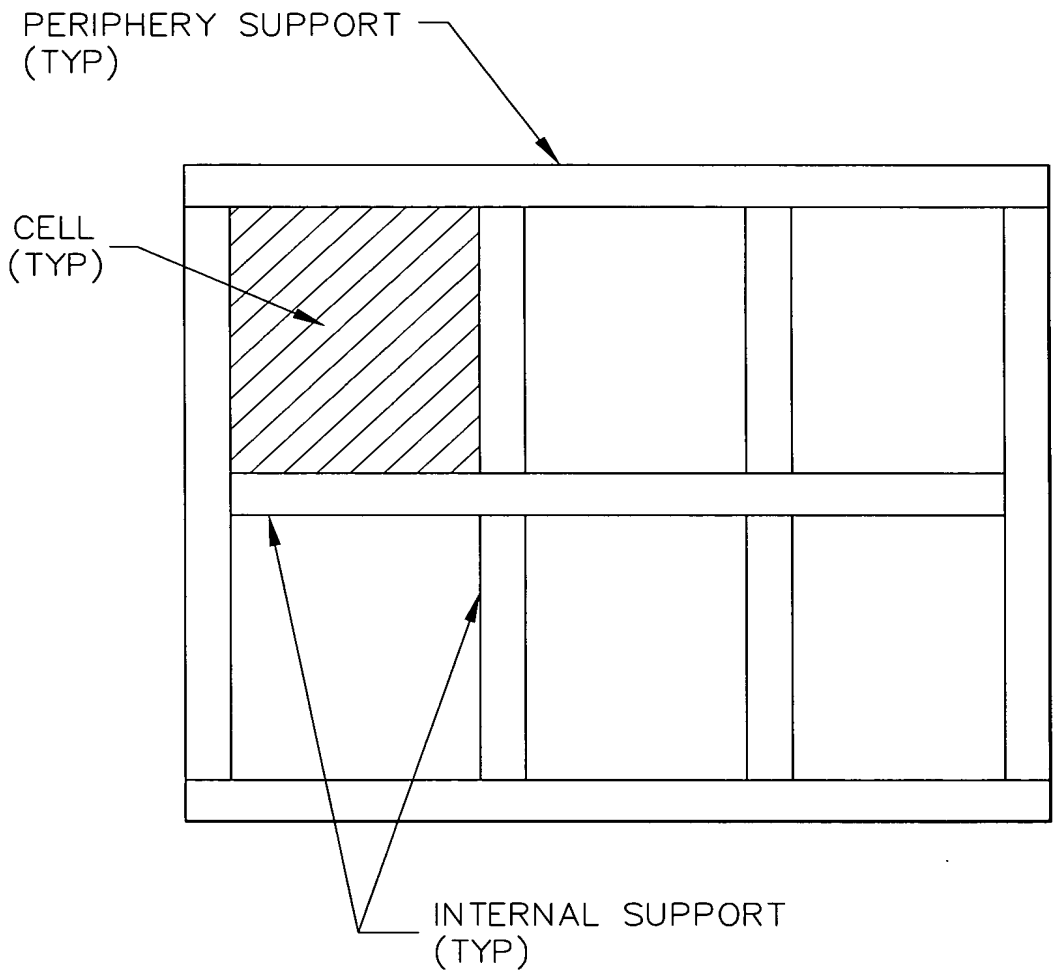


FIG. 17

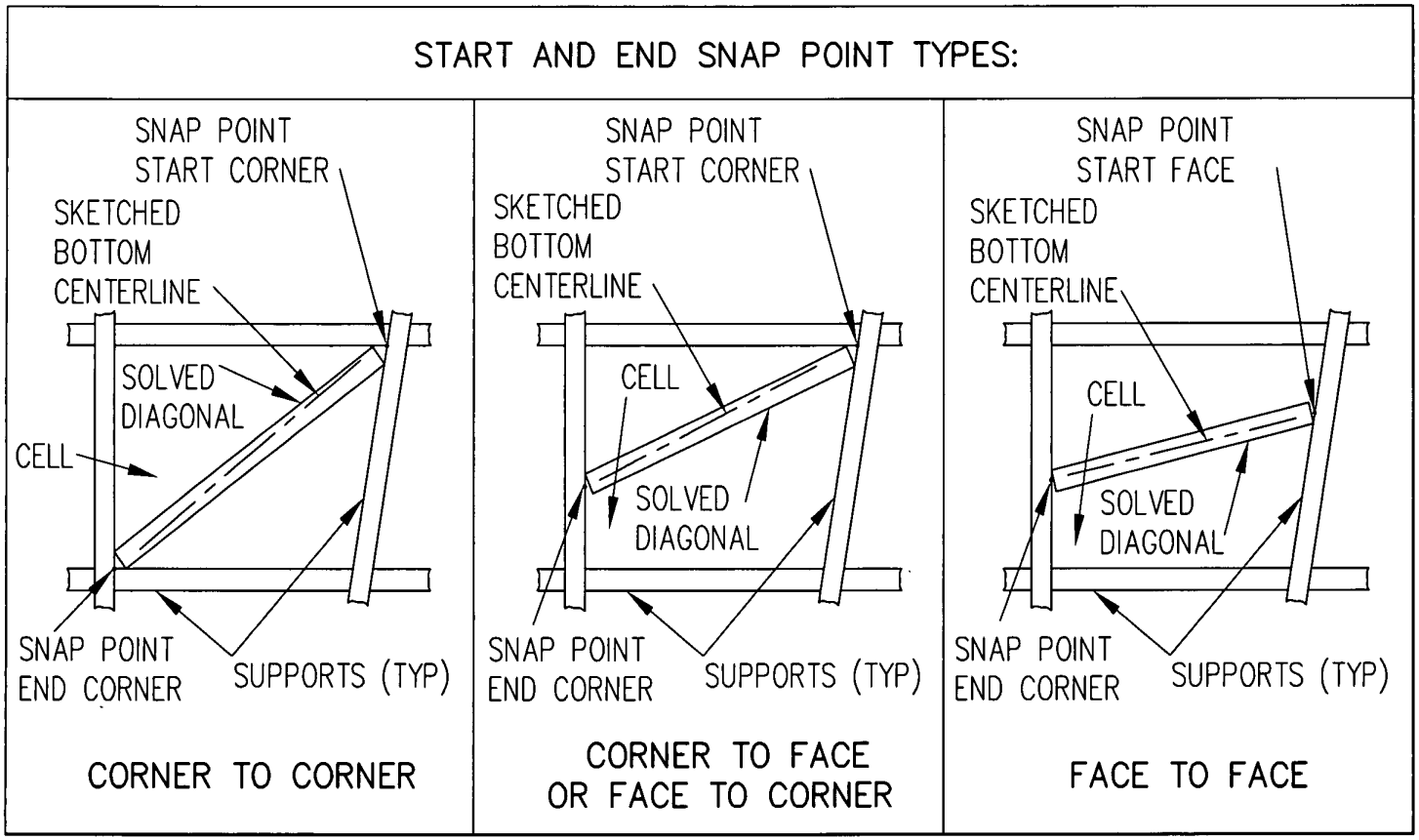

START AND END SNAP POINT TYPES:
SNAP POINT START CORNER
SKETCHED BOTTOM CENTERLINE
SOLVED DIAGONAL
CELL
SNAP POINT END CORNER
SUPPORTS (TYP)
CORNER TO CORNER
SNAP POINT START CORNER
SKETCHED BOTTOM CENTERLINE
CELL
SOLVED DIAGONAL
SNAP POINT END CORNER
SUPPORTS (TYP)
CORNER TO FACE OR FACE TO CORNER
SNAP POINT START FACE
SKETCHED BOTTOM CENTERLINE
CELL
SOLVED DIAGONAL
SNAP POINT END CORNER
SUPPORTS (TYP)
FACE TO FACE

FIG. 18

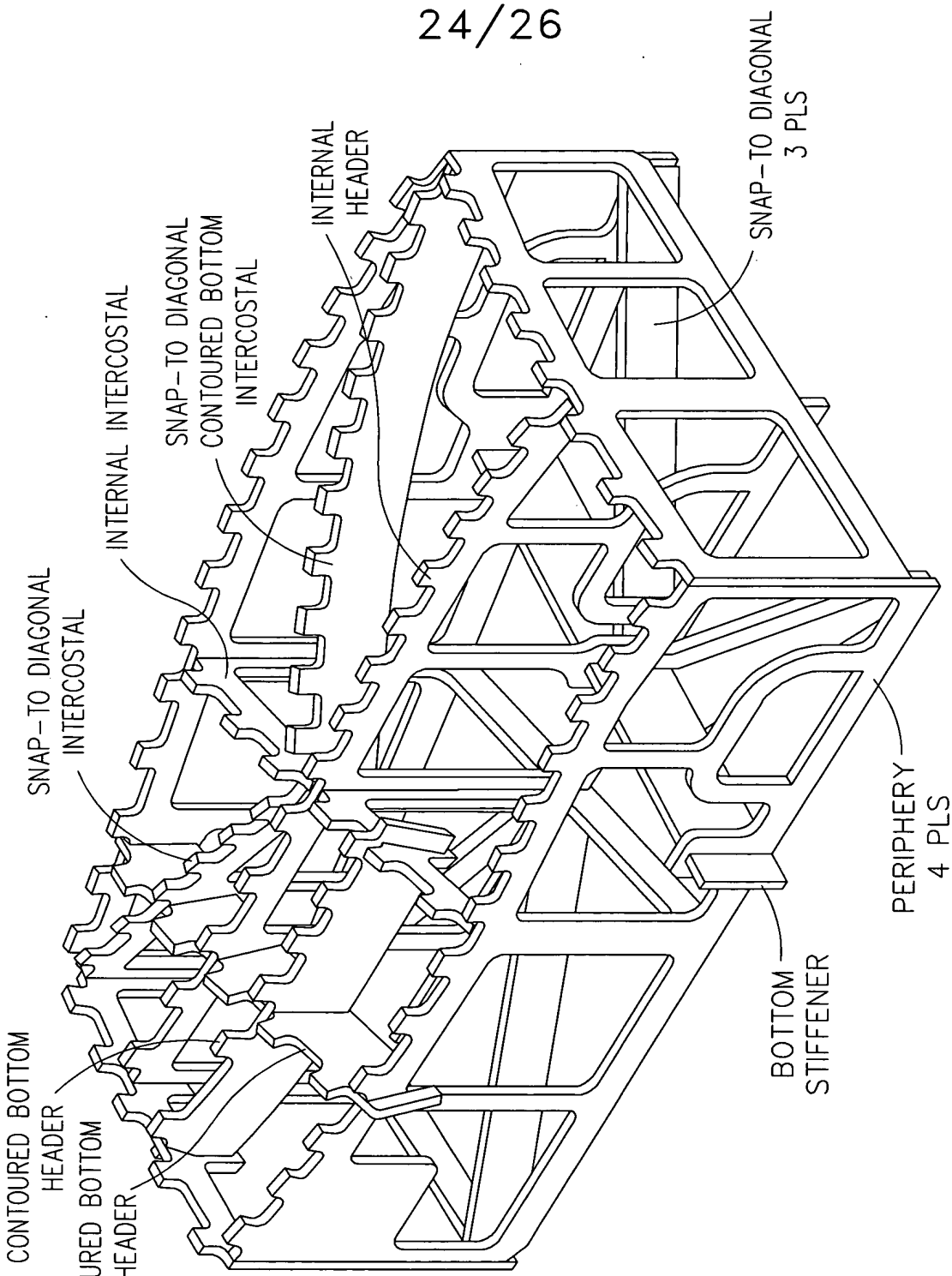

CONTOURED BOTTOM HEADER
CONTOURED BOTTOM HEADER
SNAP-TO DIAGONAL INTERCOSTAL
INTERNAL INTERCOSTAL
SNAP-TO DIAGONAL CONTOURED BOTTOM INTERCOSTAL
INTERNAL HEADER
SNAP-TO DIAGONAL 3 PLS
BOTTOM STIFFENER
PERIPHERY 4 PLS

FIG. 19

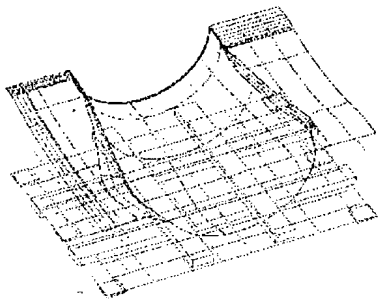
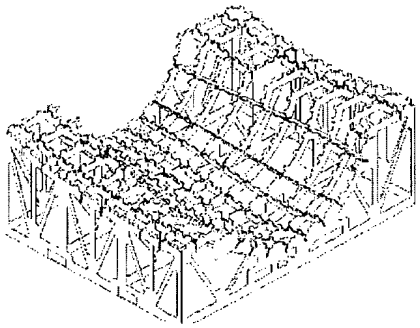
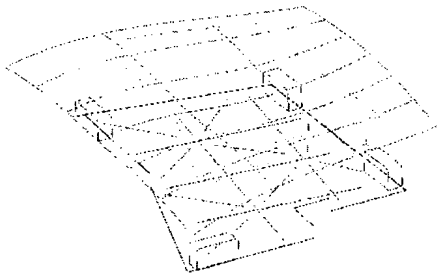
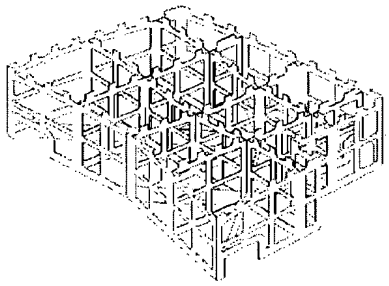
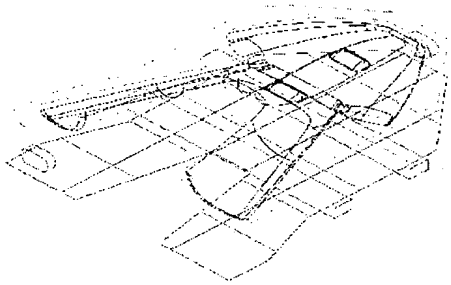
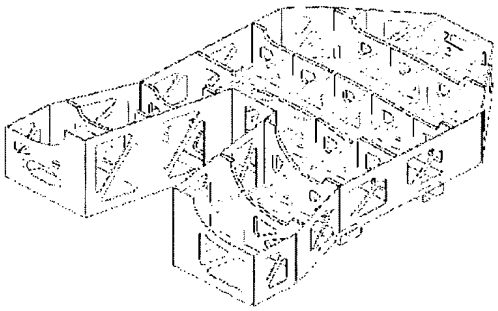
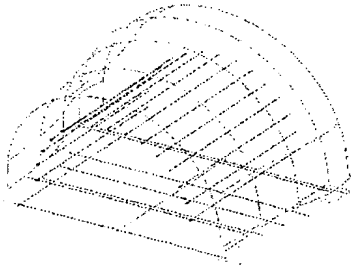
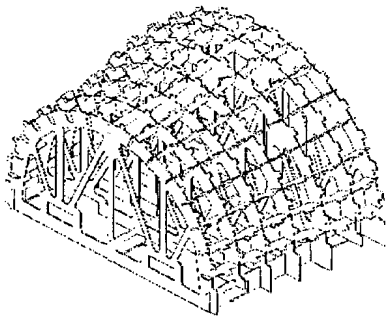
INPUTS	OUTPUTS
	
	
	
	

FIG. 20A

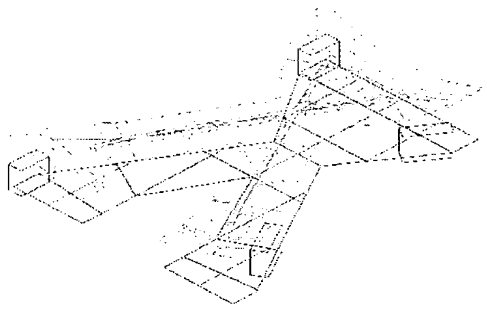
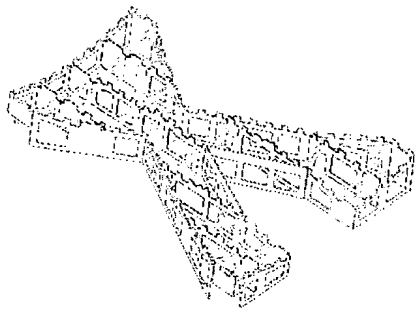
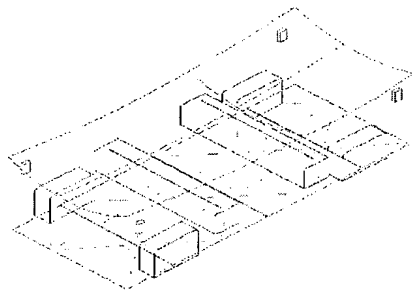
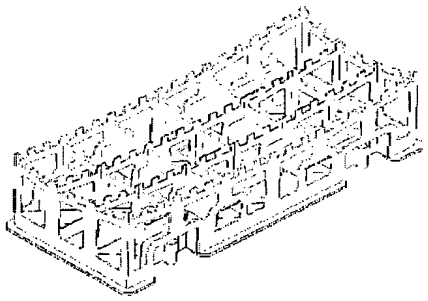
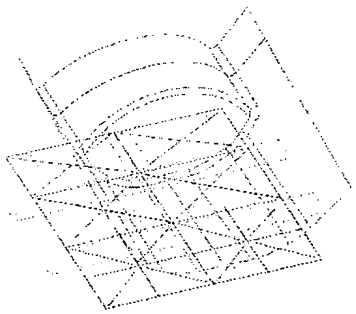
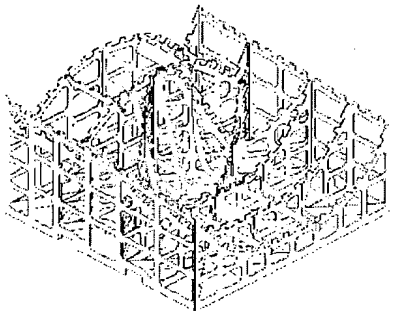
INPUTS	OUTPUTS
	
	
	

FIG. 20B